

August 2015 Climate Review for Puerto Rico and the U.S. Virgin Islands

...Based on data received until Sep 5<sup>th</sup> ...

SAN JUAN

#### **SYNOPSIS**

A fair and stable weather pattern prevailed across the local islands during the first half of the month with mostly clear/sunny skies and a few locally induced showers. Weather regime shifted during the second part of the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month">the month as several tropical waves as well as <a href="mailto:the month as several tropical waves as well as <a href="mailto:the month as several tropical waves as well as <a href="mailto:the month as several tropical waves as well as <a href="mailto:the month as several tropical waves as well as <a href="mailto:the month as several tropical waves as well as <a href="mailto:the month as several tropical waves as well as <a href="mailto:the month as several tropical waves as well as <a href="mailto:the waves as well as "the month as several tropical waves as well as <a href="mailto:the waves as well as "the w

Based on COOP data, an average rainfall total of 1.74 and 2.79 inches was observed across Saint Thomas/Saint John and Saint Croix, respectively. This is only 46% and 87% of their normal rainfall. August 2015 is the 6<sup>th</sup> month in a row with rainfall accumulations below normal across the local islands. An average rainfall total of 5.36 inches was observed across Puerto Rico, which is 0.86 inches below normal. The highest maximum temperature recorded this month was 97°F at Magueyes Island on 8/21, and the lowest minimum temperature was 64°F at Maricao 2 SSW on 8/28.

Strong El Niño conditions are currently observed across the Equatorial Pacific and is currently the 3rd largest, behind 1997 and 1987. It is expected to peak during late fall / early winter and gradually weaken through the Spring. Under these conditions, seasonal forecast continues to indicate rainfall below normal during September-October and November. Based on the U.S. Drought Outlook from the Climate Prediction Center, drought conditions should intensify or persist through this period. The Caribbean Climate Outlook Forum also indicates rainfall below normal with a 45% chance.



#### **RAINFALL**

Islandwide climate record period: 1940 to 2015

San Juan Metro Area climate record period: 1898 to 2015 (Primary climatological site) Cyril E. King Airport/St Thomas climate record period: 1953 to 2015 (Primary climatological site) Henry E. Rohlsen Airport/St Croix climate record period: 1951 to 2015 (Primary climatological site)

Following WMO criteria: Less than 10% of missing values

#### Click on image to enlarge

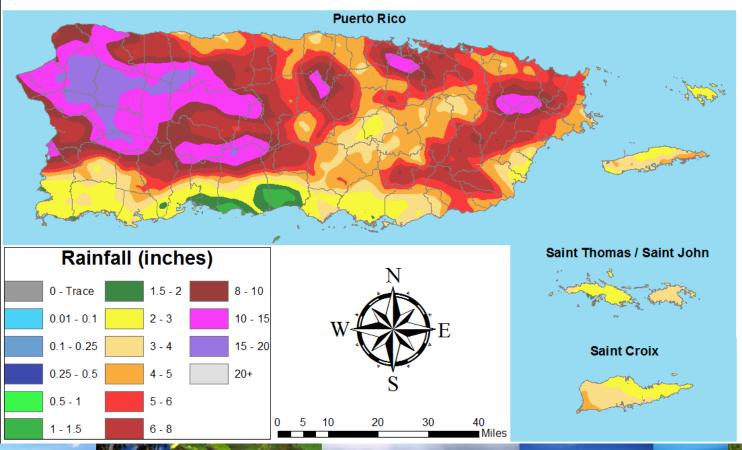


#### 2015 August Estimated Rainfall

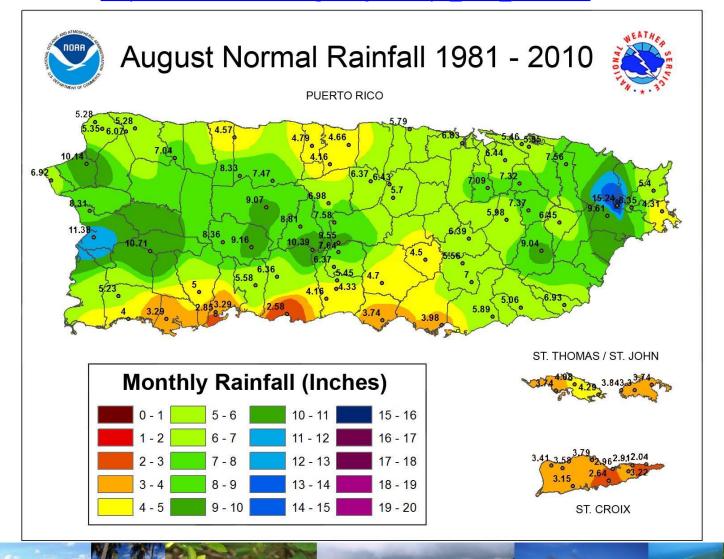
**National Weather Service WFO San Juan** 

Data Source: AHPS
Data is Preliminary





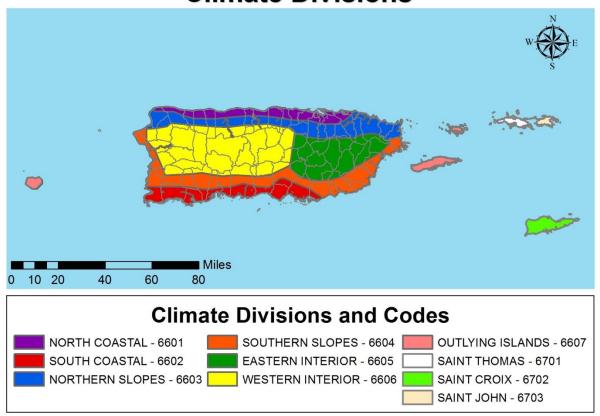
#### http://www.srh.noaa.gov/sju/?n=pr\_usvi\_normals







### Puerto Rico and U.S. Virgin Islands Climate Divisions



North Coastal	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
OBSERVED	3.98	3.81	2.73	1.82	4.17	2.50	1.82	5.29				
NORMAL	4.06	2.96	2.87	5.16	7.24	4.71	5.67	5.86				
%PON PER MONTH	98	129	95	35	58	53	32	90				
ACCUMULATED	3.98	7.79	10.52	12.34	16.51	19.01	20.83	26.12				
NORMAL												
ACCUMULATION	4.06	7.02	9.89	15.05	22.29	27.00	32.67	38.53				
% PON ACCUMULATED	98	111	106	82	74	70	64	68				

South Coastal	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
OBSERVED	1.92	1.85	1.79	1.18	2.45	0.54	1.39	3.22				
NORMAL	1.62	1.45	1.78	2.76	4.39	2.66	2.97	4.13				
%PON PER MONTH	119	<b>128</b>	101	43	56	20	47	<b>78</b>				
ACCUMULATED NORMAL	1.92	3.77	5.56	6.74	9.19	9.73	11.12	14.34				
ACCUMULATION	1.62	3.07	4.85	7.61	12.00	14.66	17.63	21.76				
% PON ACCUMULATED	119	123	115	89	<b>77</b>	66	63	66				



Northern Slopes	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
OBSERVED	4.32	3.80	1.98	2.83	1.98	2.02	2.98	3.03				
NORMAL	4.20	3.03	3.23	5.26	7.47	4.96	5.49	6.04				
%PON PER MONTH	103	125	61	54	27	41	54	50				
ACCUMULATED	4.32	8.12	10.10	12.93	14.91	16.93	19.91	22.94				
NORMAL					>_							
ACCUMULATION	4.20	7.23	10.46	15.72	23.19	28.15	33.64	39.68				
% PON ACCUMULATED	103	112	97	82	64	60	59	58				

Southern Slopes	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
OBSERVED	2.39	2.84	2.00	1.47	2.68	0.99	1.79	3.04				
NORMAL	2.00	1.86	2.28	3.91	5.90	3.54	3.83	5.54				
%PON PER MONTH	120	<b>153</b>	88	38	45	28	47	55				
ACCUMULATED NORMAL	2.39	5.23	7.23	8.70	11.38	12.37	14.16	17.20				
ACCUMULATION	2.00	3.86	6.14	10.05	15.95	19.49	23.32	28.86				
% PON ACCUMULATED	120	135	118	87	71	63	61	60				



Eastern Interior	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
OBSERVED	4.71	5.83	2.70	1.89	3.11	2.30	2.73	7.28				
NORMAL	4.69	3.92	3.90	5.26	8.15	6.39	7.13	7.47				
%PON PER MONTH	100	149	69	36	38	36	38	97				
ACCUMULATED	4.71	10.54	13.24	15.13	18.24	20.54	23.27	30.55				
NORMAL												
ACCUMULATION	4.69	8.61	12.51	17.77	25.92	32.31	39.44	46.91				
% PON ACCUMULATED	100	122	106	85	70	64	59	65				

Western Interior	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
OBSERVED	3.75	5.06	3.79	6.65	7.25	4.21	2.76	7.66				
NORMAL	3.90	2.75	3.57	6.77	10.09	5.83	5.70	8.29				
%PON PER MONTH	96	184	<b>106</b>	98	72	72	48	92				
ACCUMULATED NORMAL	3.75	8.81	12.60	19.25	26.50	30.71	33.47	41.13				
ACCUMULATION	3.90	6.65	10.22	16.99	27.08	32.91	38.61	46.90				
% PON ACCUMULATED	96	132	123	113	98	93	87	88				



Units: inches

# 2015 Average Rainfall Accumulation per Climate Zones

Mainland PR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
OBSERVED	3.57	4.15	2.71	3.33	4.15	2.39	2.35	5.36				
NORMAL	3.41	2.66	2.94	4.85	7.21	4.68	5.13	6.22				
%PON PER MONTH	105	156	92	69	58	51	46	86				
ACCUMULATED NORMAL	3.57	7.72	10.43	13.76	17.91	20.30	22.65	28.01				
ACCUMULATION	3.41	6.07	9.01	13.86	21.07	25.75	30.88	37.10				
% PON ACCUMULATED	105	127	116	99	85	<b>79</b>	<b>73</b>	<b>75</b>				

Saint Thomas/Saint John	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
OBSERVED	1.46	3.92	1.26	0.30	2.32	1.97	0.26	1.74				
NORMAL	2.72	1.71	1.47	2.92	3.90	2.54	3.33	3.78				
%PON PER MONTH	54	<b>229</b>	86	10	59	78	8	46				
ACCUMULATED	1.46	5.38	6.64	6.94	9.26	11.23	11.49	13.23				
NORMAL					<u> </u>							
ACCUMULATION	2.72	4.43	5.90	8.82	12.72	15.26	18.59	22.37				
% PON ACCUMULATED	54	121	113	79	73	74	62	59				

Saint Croix	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
OBSERVED	2.17	1.66	0.96	1.93	0.89	1.52	0.70	2.79				
NORMAL	2.00	1.61	1.53	2.47	3.88	2.60	3.24	3.22				
%PON PER MONTH	<b>109</b>	103	63	78	23	58	22	87				
ACCUMULATED NORMAL	2.17	3.83	4.79	6.72	7.61	9.13	9.83	12.62				
ACCUMULATION	2.00	3.61	5.14	7.61	11.49	14.09	17.33	20.55				
% PON ACCUMULATED	109	<b>106</b>	93	88	66	65	57	61				



These data are preliminary and have not undergone final quality control by the National **Centers for Environmental** Information / NCEI/. Therefore, these data are subject to revision. Normal values are based on active COOP stations. Final and certified climate data can be accessed at www.ncdc.noaa.gov.

Top 5 Wettest Top 5 Driest Islandwide

Year	Inches		Year	Inches
Aug-11	16.43		Aug-87	4.26
Aug-79	14.13		Aug-84	4.58
Aug-63	13.15		Aug-94	4.67
Aug-14	12.12		Aug-93	4.68
Aug-88	11.60	*	Aug-80	4.88

Mean Rainfall: 6.22 inches

August 2015 accumulation: 5.36 inches.



Islandwide climate record period: 1940 to 2015

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San Juan Metro Area

Year	Inches		Year	Inches
2011	18.56		1919	1.53
1944	14.10		1994	1.83
1988	11.31		1982	1.93
1928	10.39		1991	1.94
1899	10.38	$\star$	1915	2.36

Mean Rainfall: 5.46 inches

August 2015 accumulation: 5.96 inches.





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Top 5 Wettest Top 5 Driest

Cyril E. King Airport St Thomas

Year	Inches		Year	Inches
2011	9.14		1993	0.70
1963	8.54	3	1991	0.98
2005	8.22		2002	1.26
2014	7.76		2015	1.75
2013	7.53	*	2009	1.75

Mean Rainfall: 3.74 inches

August 2015 ended as the 4<sup>th</sup> driest August on record.





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Top 5 Driest

Henry E. Rohlsen Airport St Croix

Year         Inches         Year         Inches           1989         11.04         2005         1.35           1978         7.80         1980         1.40           1963         6.99         2009         1.51           2011         6.81         1982         1.53				
Year	Inches		Year	Inches
1989	11.04		2005	1.35
1978	7.80	3	1980	1.40
1963	6.99		2009	1.51
2011	6.81		1982	1.53
1988	6.81	*	1987	1.63

Mean Rainfall: 3.15 inches

August 2015 accumulation: 3.00 inches.





#### **Wettest** Days

Station	Inches	Date
SANTA RITA	4.00	8/6/2015
JAJOME ALTO	3.16	8/28/2015
SAN LORENZO 3 S	2.85	8/28/2015
TOA BAJA LEVITOWN	2.68	8/17/2015
PALMA SOLA	2.44	8/28/2015



## August 2015 Highlights for Primary Climatological Data Sites Wettest Days

San Juan Metro Area

Inches	Date
1.82	8/16/2015
1.04	8/21/2015
0.57	8/17/2015
0.48	8/25/2015
0.44	8/8/2015

Cyril E. King AP/St Thomas

•		
1	Inches	Date
	0.87	8/16/2015
	0.23	8/8/2015
۵	0.22	8/23/2015
	0.15	8/27/2015
	0.08	8/15/2015

Henry E. Rohlsen AP/St. Croix

Inches	Date
1.85	8/27/2015
0.35	8/4/2015
0.18	8/28/2015
0.13	8/30/2015
0.13	8/24/2015





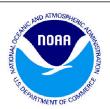


### **TEMPERATURE**

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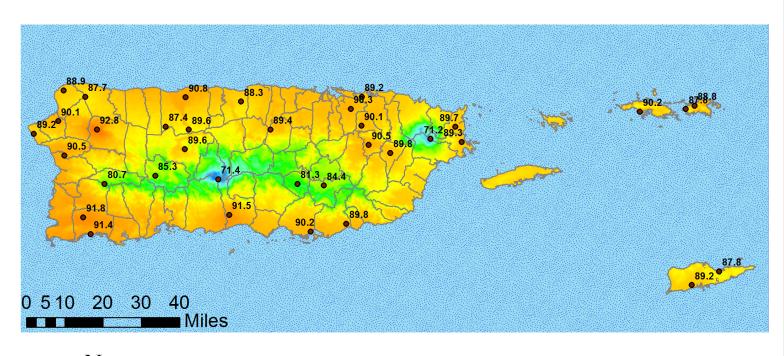
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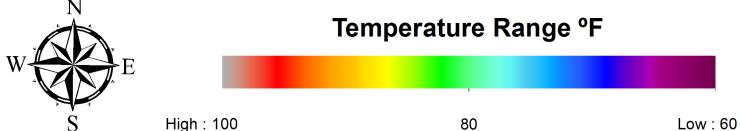


## **August Normal Maximum Temperatures 1981-2010**



**National Weather Service WFO San Juan** 





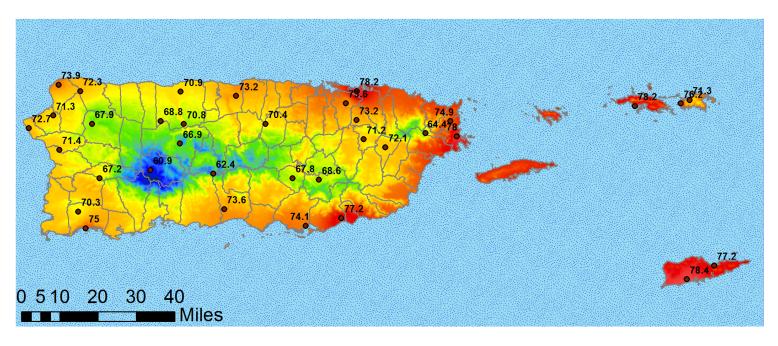


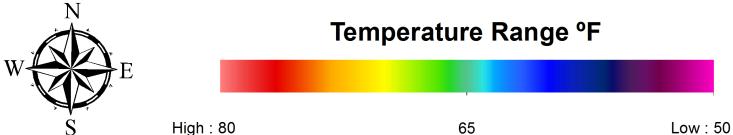


## **August Normal Minimum Temperatures 1981-2010**



**National Weather Service WFO San Juan** 





# August 2015 in Perspective: Mean Avg. Temperature

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Top 5 Warmest Top 5 Coolest
San Juan Metro Area

Year	₽F	Year	ºF
1980	85.0	1904	78.9
1982	84.6	1913	79.0
1995	84.5	1921	79.4
2009	84.4	 1909	79.5
2010	84.2	1922	79.6

Mean Temperature: 83.7 °F

August 2015 mean temperature 83.2 °F



# August 2015 in Perspective: Mean Avg. Temperature

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Top 5 Warmest

Top 5 Coolest

**Cyril E. King Airport St Thomas** 

Year	ºF	Year	<b>º</b> F
1994	87.3	1956	81.2
1993	87.2	1954	82.3
1990	85.6	1955	82.6
2015	85.4	 1983	82.9
1995	85.4	1957	82.9

Mean Temperature: 84.2 °F

August 2015 ended as the 4<sup>th</sup> warmest August on record.





# August 2015 in Perspective: Mean Avg. Temperature

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Year

1989

1998

1997

1995

1993

Top 5 Warmest Top 5 Coolest

**ºF** 

86.5

84.8

84.8

84.7

84.7

Henry E. Rohlsen Airport St Croix

	Year	<b>∘F</b>
	1956	81.4
	1955	81.4
	1975	81.7
*	2006	81.9
	1954	82.0

Mean Temperature: 83.8 °F

August 2015 mean temperature 84.3 °F

August 2015 ended as the 9<sup>th</sup> warmest August on record.





### August 2015 Highlights

#### Highest Maximum Temps Lowest Minimum Temps

Station	Value ( ºF)	Date
MAGUEYES ISLAND	97	8/21/2015
DOS BOCAS	96	8/5/2015
LAJAS SUBSTATION	95	8/13/2015
AGUIRRE	95	8/27/2015
JUNCOS 1 SE	95	8/27/2015

Station	Value ( ºF)	Date
MARICAO 2 SSW	64	8/28/2015
LAJAS SUBSTATION	66	8/11/2015
AIBONITO	66	8/29/2015
PALMA SOLA	66	8/28/2015
DOS BOCAS	68	8/23/2015





#### 2015 Highlights for Primary Climatological Data Sites

### Summer

	Jun	Jul	Aug	Season	YTD Data until 8/30
San Juan	17 <sup>th</sup> driest and 8 <sup>th</sup> warmest	4 <sup>th</sup> driest and 9 <sup>th</sup> warmest	- FT	11 <sup>th</sup> driest and 10 <sup>th</sup> warmest	13 <sup>th</sup> driest and 5 <sup>th</sup> warmest
Saint Thomas	13 <sup>th</sup> driest and 13 <sup>th</sup> warmest	2 <sup>nd</sup> driest, 8 <sup>th</sup> driest month, 5 <sup>th</sup> warmest, the month of July with the most 80 degree nights, and 3 <sup>rd</sup> longest streak -Tmin above 80 (ending 08/01).	4 <sup>th</sup> warmest and 4 <sup>th</sup> driest. the 2 <sup>nd</sup> month of Aug with the most 80 degree nights, the 2 <sup>nd</sup> month on record with the most 80 degree nights	Driest and 3 <sup>rd</sup> warmest	9 <sup>th</sup> wettest and 4 <sup>th</sup> warmest
Saint Croix	7 <sup>th</sup> driest and 8 <sup>th</sup> warmest	2 <sup>nd</sup> driest and 10 <sup>th</sup> warmest	9 <sup>th</sup> warmest	4 <sup>th</sup> driest and 6 <sup>th</sup> warmest	Driest and 5 <sup>th</sup> warmest



#### 2015 Highlights for Primary Climatological Data Sites

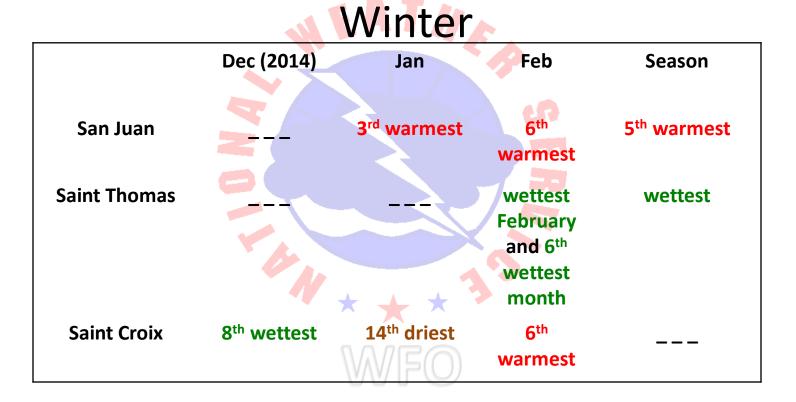
## Spring

	Mar	Apr	May	Season
San Juan	P N O I	4 <sup>th</sup> warmest	15 <sup>th</sup> driest and 5 <sup>th</sup> warmest	5 <sup>th</sup> driest and 6 <sup>th</sup> warmest
Saint Thomas		8 <sup>th</sup> driest	9 <sup>th</sup> wettest and 10 <sup>th</sup> warmest	14 <sup>th</sup> warmest
Saint Croix	10 <sup>th</sup> driest	7 <sup>th</sup> driest and 7 <sup>th</sup> warmest	9 <sup>th</sup> warmest and 12 <sup>th</sup> driest	2 <sup>nd</sup> driest and 7 <sup>th</sup> warmest





#### 2015 Highlights for Primary Climatological Data Sites







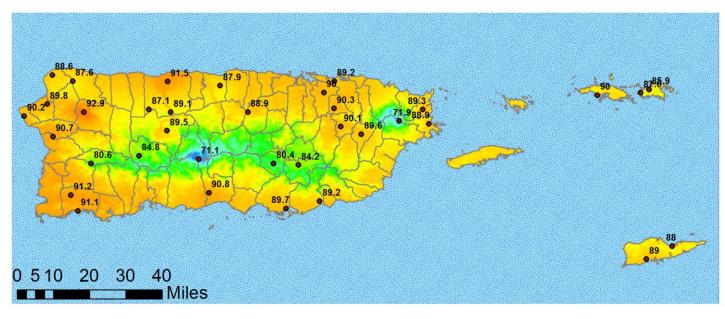


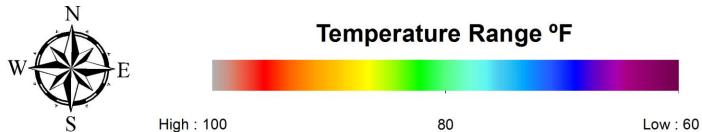


## September Normal Maximum Temperatures 1981-2010



**National Weather Service WFO San Juan** 





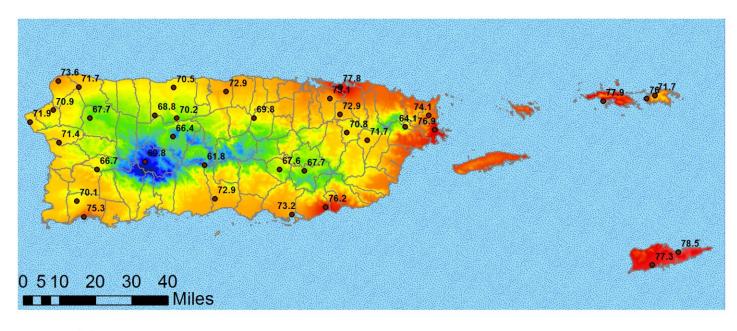


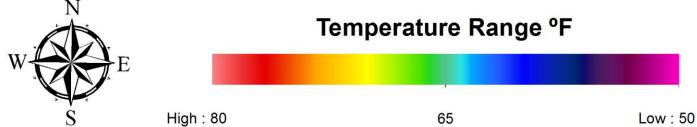


## September Normal Minimum Temperatures 1981-2010

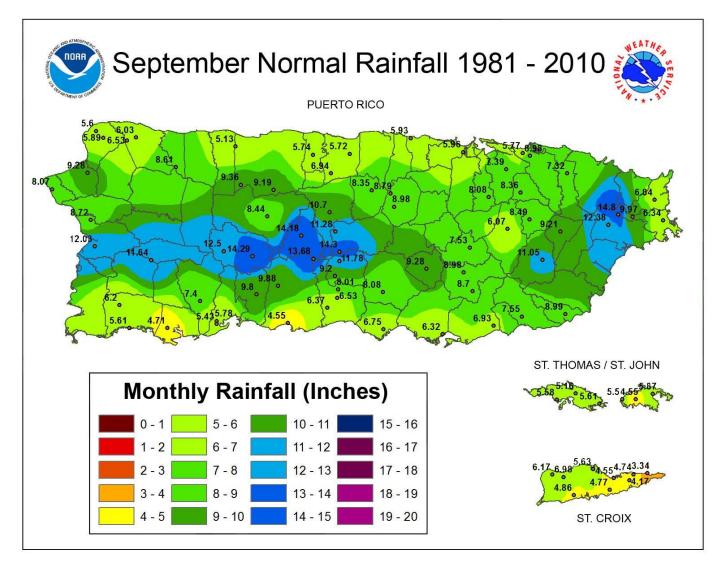


**National Weather Service WFO San Juan** 

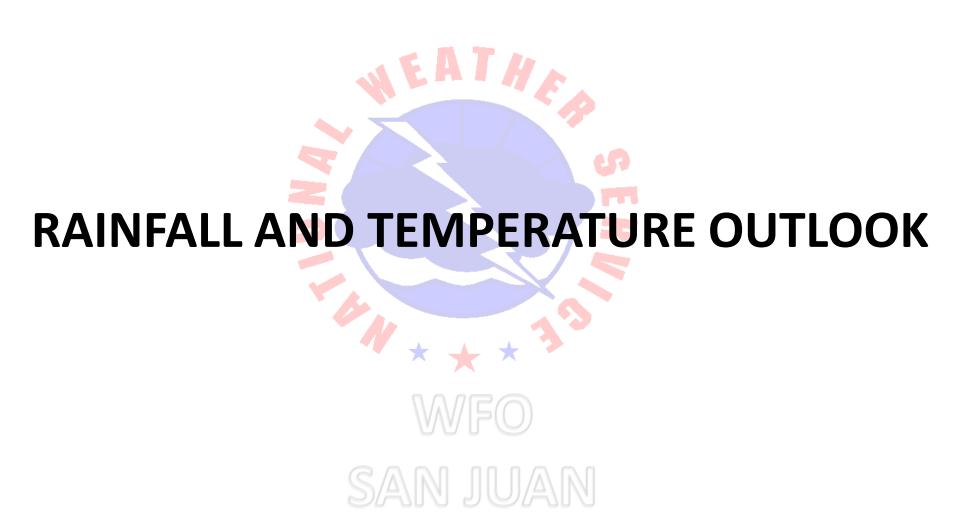


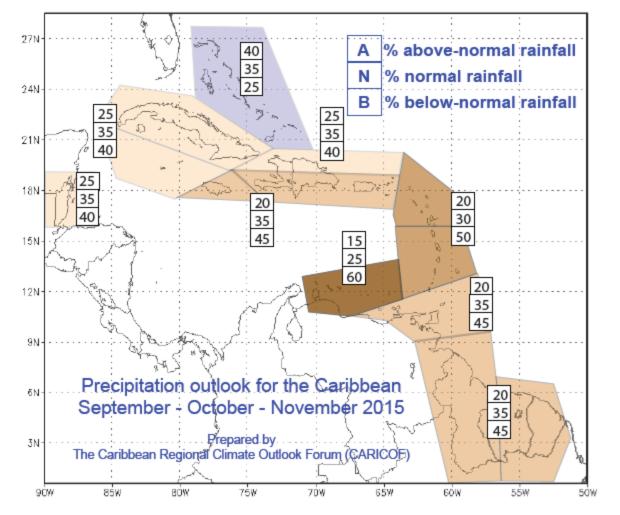




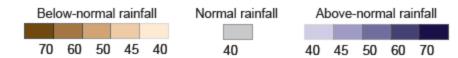


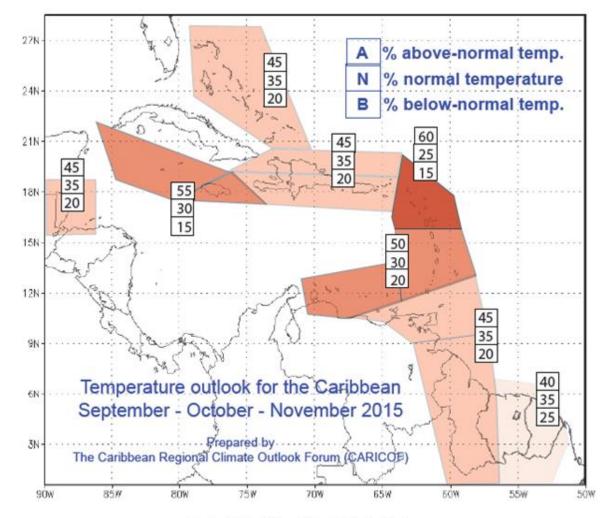




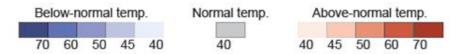


Probability (%) of Most Likely Category





Probability (%) of Most Likely Category



http://www.cimh.edu.bb/?p=precipoutlook